From: Sue McKenzie [mailto:lensue@hotmail.com]
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To: suehome Mckenzie
Subject: construction log to date

Oleleshwa Primary School is being constructed of stone from local quarries. It is relatively soft when quarried but hardens when it bonds with the mortar in a structure. It is considered to be the best building material in Kenya according to Geoffrey who is the Kenyan consultant on the design of the school. Western Kenyans are the experts in stone-cutting for the country and find employment in their trade in places like Lamu where they quarry and shape blocks of coral from ancient buried coral reefs.

Following the clearing, trench-digging and pouring of the footings, the two 'sub'-fundis (skilled labourers), under the direction of fundi James and his plumb bob, laid four courses of 9 by 9 stones (9" X 9") in the trench. James is a very exacting foreman which means his fundis are learning a lot on this project. This was often slow work as the materials required were not always available at the moment they were required. Also, the nature of the stone-laying process required three fundis for maximum efficiency when only two had been hired. One fundi always seemed to be chipping and shaping the blocks rather than laying stone. This situation was soon resolved when one of the stone-smoothers was seconded to this job. The wonderful volunteer labourers mixed the mortar and kept everyone supplied as needed.

The stone-smoothers were the most interesting workers in this process. Each stone in the walls must have one side dressed. So with a simple chisel and hammer the smoothers chipped bits of stone from each block until that side was smooth to the touch. Gradually over many days, the enormous chaotic piles of 9 by 6 rough stones became organized into rows of easily countable piles – important since the stone smoothers were paid by the smoothed foot.

Next the pad for the classroom floor was laid. This was very heavy work. First many small piles of ballast (gravel) were dumped by wheelbarrow on a cleared piece of ground. Then piles of sand were scattered among them, followed by bags of cement. Finally water was poured over the entire area and the mixing of the concrete with shovels began. Once mixed, of course, all of this concrete had to be moved by wheelbarrow into the formwork for the pad.

Water soon became an issue again. With the water tank close to empty and needing only enough water to mix the mortar, the community decided to provide the water in a different fashion (not the expensive water delivery truck). The women offered to carry water from the river in 5-gallon containers. Also, a man named, Amos, who hauls water manually in a wheelbarrow as his livelihood was hired. He would bring five 5-gallon containers in one trip and would make about 15 trips a day. As I said before, the river is 600 meters downhill from the school site.

In this way, the water for the mortar was supplied over the next several days as the 9 courses of stone went up for the walls. The effort by the women was particularly impressive. Many women came to carry water when they had time – the young, the pregnant, with and without kids. The older women (in their 70's!) came too and carried half-size containers. Everyone helped to build 'their' school. I met women who would tell me they were coming later in the day or the next morning. The call for help must have gone out through the community – and the women heeded it.

Karl and Alec arrived during the end of this building period. They brought Mckenzie's movie camera from Canada, so I was able to film their efforts to join the women in carrying a container of water using a tumpline around the forehead. Not very easy they declared!

Having the actual school designers now on site, gave a whole new impetus to the project. Karl and Alec bonded immediately with James (foreman).

They quickly recognized his expertise and experience as well as his obvious passion for this project which he had bid on as just another job only to become absorbed into the whole community effort. They also recognized Nicholas' (community head of the project) commitment to getting the best value for H4H money. Nicholas, with Kyla, had purchased and had had delivered to the site all of the building materials right from the beginning. He also kept a close eye on every detail of the construction process.

Doors and windows needed to be discussed as soon as 'the boys' arrived. Those experienced in building here in Kenya recommended using metal rather than wood. So that was decided. The next question was why put in four doors on the end of the building adjoining the central breezeway between the two classrooms? Why not two? When everyone realized that the cost of either option would be the same, the discussion became about the function of the building as a place that could be more than a classroom, a space that could be enlarged to encompass the outdoor breezeway as well - great for community gatherings as well as for small learning groups outside the actual classroom proper. Amos made a very strong argument that Oleleshwa Primary is a very unique building, very unlike the existing buildings we could see around us, and it didn't make sense to change part of that uniqueness to make it more like the usual box-like structures. Four doors it was, then.

Once that was decided, the go-ahead was given for the construction of the pillars between the doors. As had occurred on each corner of the building, pillars with reinforcement rebar were constructed from the foundation up to the roof. This task took several days. Wooden formwork was constructed for each pillar. The water truck once again delivered 4000 gal of water for the mixing of the concrete. The pillars gradually took shape as the volunteers did the heavy manual labour of mixing the sand, ballast and cement by hand, this time on the concrete pad inside the walls. They carried the concrete up the wooden scaffolding to dump into the formwork.

Meanwhile, Alec and Karl visited lumberyards and hardware stores to purchase the lumber and bolts to begin the trusses. There had been long discussion before they arrived about whether a power drill could be charged here to use for drilling the holes for the bolts. Greg sent his drill which lasted a day. For some reason the battery could not be recharged. So it was back to the brace and bit and manual drilling. Malfunctioning braces led the boys back to Narok to exchange for ones that worked. Drilling holes in green blue gum lumber has proven daunting. It is VERY hard and VERY green. The first truss will be finished today.

Since the cut lumber here is much thicker than at home (e.g. a 2 by 6 could be 2 1/4 by 6 ½), the good news is that fewer trusses will be needed. Today, with the help of Len, Karl will begin building a step truss. James and crew will pour the ring beam upon which the trusses will sit. Alec is starting to work on the earth bag construction. More on what on earth this is later!! And so it continues . . .

I hope my rather abbreviated version of the building of Oleleshwa Primary School in Kenya by Harambee 4 Humanity and the Maasai community of Ewaso Ngiro will suffice for the construction buffs and architects who stumble upon this posting. Pictures of the entire process can be viewed at www.harambee4humanity.org Click on the Blog button.